



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/783,958	02/16/2001	Seong-Min Kim	P64425US2	2946

136 7590 08/11/2003
JACOBSON HOLMAN PLLC
400 SEVENTH STREET N.W.
SUITE 600
WASHINGTON, DC 20004

EXAMINER

NGUYEN, HA T

ART UNIT PAPER NUMBER

2812

DATE MAILED: 08/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/783,958

Applicant(s)

KIM ET AL.

Examiner

Ha T. Nguyen

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 33-44, 46-50 and 55-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 33, 35-44, 50, 55, 58 and 61 is/are rejected.
- 7) ☒ Claim(s) 34, 46-49, 56, 57, 59, 60 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Notice to applicant

1. Applicants' Amendment and Response to the Office Action mailed 2-19-3 has been entered and made of record (Paper No. 6).

Response to Amendment

2. In view of Applicants' cancellation of the claims, the objection to and rejection of claims 45 and 51-54 under 35 U.S.C. 103 have been rendered moot.

In view of Applicants' amendment to the claims, the objection to claims 33-44 and 46-50 for informality, has been withdrawn.

In view of Applicants' arguments and amendment to the claims, the rejections to claims 33-44 and 46-50 under 35 U.S.C. 102 or 103, as stated in Paper No. 3, have been withdrawn.

Applicants are referred to the new ground of rejection given below.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103[®] and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 2812

4. Claims 33, 35, 36, 39, 40, 42, 43, 58, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amano et al. (USPN 6235433, hereinafter "Amano") in view of Huf et al. (USPN 3734778, hereinafter "Huf").

[Claims 33, 58 and 61] Referring to Fig. 1 and related text, Amano discloses a method for manufacturing an electric energy storage device comprising the forming an ionic conducting polymer electrolyte separator. comprising : i) preparing common solvent for an electrolyte and for dissolving polymer and ii) dissolving at least one polymer selected from the group consisting of polymer of polyacrylate series, polyvinylidene fluoride, copolymer of polyvinylidene fluoride and polymer of polyether series in said common solvent (see col. 4, line 34-col. 5, line 12, col. 9, lines 23-36, example 1, col. 13, and lines 48-59). But it does not disclose expressly forming said separator on a first electrode, winding said first electrode at least half a revolution, and then winding said first electrode with a second electrode, or forming an isolating means on an end portion of said first electrode. However, the missing limitations are well known in the art because Huf discloses these features, the end portion of the separator 16 corresponds to the claimed isolating means formed on an end portion of the first electrode, the amount of winding of the first electrode should obviously large enough to ensure tight and smooth fitting of the second electrode in the winding. Besides, paper separator is well known in the art. A person of ordinary skill is motivated to modify Amano with Huf to have good winding of the well isolated electrodes.

[Claims 35, 36, 39, 40, 42, and 43] wherein said common solvent is composed of propylene carbonate; wherein said common solvent comprises alkylammonium compounds including tetraethyl- ammoniumtetrafluoroborate or amide compounds including tertiary amide; wherein said common solvent is composed of butyrolactone; wherein said common solvent is composed of propylene carbonate and gamma-butyrolactone (see col. 9, lines 47-60).

Therefore, it would have been obvious to combine Amano with Huf to obtain the invention as specified in claims 33, 35, 36, 39, 40, 42, 43, 58, and 61.

5. Claims 37, 41, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amano in view of Huf and further in view of Chu (USPN 5789108).

The combined teaching of Amano and Huf discloses substantially the limitations of claims 37 , 41, and 44, as shown above.

But it does not disclose expressly wherein the step of dissolving said polymer is performed by homogeneously dispersing polyacrylonitrile and polyvinylidene fluoride in said common solvent.

However, the missing limitations are well known in the art because Chu discloses that polyacrylonitrile and polyvinylidene fluoride are conventional materials used in gel electrolyte (See col. 6, lines 10-14).

It is within the level of ordinary skill in the art to use conventional materials to perform the same function.

Therefore, it would have been obvious to combine Amano and Huf with Chu to obtain the invention as specified in claims 37 , 41, and 44.

6. Claims 38 rejected under 35 U.S.C. 103(a) as being unpatentable over Amano in view of Huf and further in view of Skotheim (USPN 5690702, hereinafter "Skotheim").

The combined teaching of Amano and Huf discloses substantially the limitations of claim 38, as shown above.

But it does not disclose expressly wherein the step of dissolving said polymer is performed by homogeneously dispersing polyacrylonitrile and polymethylmethacrylate in said common solvent.

However, the missing limitations are well known in the art because Skotheim et al. discloses that polyacrylonitrile and polyvinylidene fluoride are conventional materials used in gel electrolyte (See col. 5, lines 37-48).

It is within the level of ordinary skill in the art to use conventional materials to perform the same function.

Therefore, it would have been obvious to combine Amano and Huf with Skotheim to obtain the invention as specified in claim 38.

7. Claims 50 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amano in view of Huf and further in view of West (USPN 4010405).

Art Unit: 2812

The combined teaching of Amano and Huf discloses substantially the limitations of claims 50 and 55, as shown above. Huf also discloses forming said separator 16 on a first electrode 12. But it does not disclose expressly said first electrode is wider and longer than said second electrode.

However, the missing limitation is well known in the art because West discloses said first electrode is wider than said second electrode and the size of the first electrode can be modified to fit the design of a specific application (see col. 2, lines 48-60).

Therefore, it would have been obvious to combine Amano and Huf with West to obtain the invention as specified in claims 50 and 55.

Allowable Subject Matter

7a. Claims 34, 46-49, 56, 57, 59, and 60 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 34 recites "heating a mixture of said common solvent and said polymer and coating said mixture on a current collector", claims 46, 56, and 59 recite "directly coating said separator on said first electrode", claims 48, 57, and 60, "injecting additional electrolyte that is different from said common solvent in said first electrode and second electrode".

These features in combination with the other elements of the claims are neither disclosed nor suggested by the prior art of record.

Claims 47 and 49 variously depend from claim 46 or 48, they are allowed for the same reason.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

Art Unit: 2812

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ha Nguyen whose telephone number is (703)308-2706 . The examiner can normally be reached on Monday-Friday from 8:30AM to 6:00PM, except the first Friday of each bi-week.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached on (703) 308-3325. The fax phone number for this Group is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.



Ha Nguyen

Primary Examiner

8 - 5 - 03